

21.4200

24394
S/186/60/002/002/013/022
E071/E433

AUTHORS: Tserkovnitskaya, I.A. and Charykov, A.K.

TITLE: A study of the extraction separation of thorium from some elements using the method of marked atoms.¹⁹
I. The extraction of thorium phenylacetate with diethyl ether. A compound of uranyl ion with phenylacetic acid. The separation of thorium from uranium

PERIODICAL: Radiokhimiya, 1960, Vol.2, No.2, pp.222-230

TEXT: The object of the work was the development of a method of separation of thorium from some other elements (particularly uranium and rare earth elements) suitable for the extraction of thorium from its natural raw materials. The method was based on the precipitation of thorium with phenylacetic acid and the extraction of the precipitate by organic solvents. Solutions of thorium nitrate, a 2% aqueous solution of phenylacetic acid (AR) and diethyl ether were used as reagents. The distribution of thorium was controlled using radioactive thorium isotope UX_1 (Th^{234} , $T = 24.5$ days). All experiments were done at a constant ionic force equal 2, produced by ammonium chloride. The
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precipitation was from hot solutions. The extraction was done at about 20°C. Optimum extraction conditions: the volume of ether should equal the volume of the aqueous phase, the concentration of thorium should be of the order of 1 mg per 20 ml of the solution. It was found that the precipitated thorium phenylacetate possesses specific properties, namely it is extracted by some organic solvents without changing its structure, i.e. without dissolving in the organic phase. A complete extraction of thorium phenylacetate with diethyl ether takes place in the pH range of 3-5. From the organic phase thorium can be quantitatively re-extracted with dilute (1:10) mineral acids. The dissociation constant of phenylacetic acid and its distribution constant between diethyl ether and water at an ionic force of the solution equal 2 and a temperature of 20°C were found to be $(8.1 \pm 0.4) \times 10^{-5}$ and 34 ± 2 respectively. On studying the possibility of the separation of thorium from uranium, it was established that from a solution containing 0.1 M of phenylacetic acid, 2M of ammonium chloride and a concentration of uranyl ion of about 5 mg/ml, a precipitate is formed beginning from a pH of 2.6 and above. The composition of the precipitate corresponds to the Card 2/3

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formula $\text{UO}_2(\text{C}_6\text{H}_5\text{CHOO})_2 \cdot \text{C}_6\text{H}_5\text{CH}_2\text{COONH}_4$. It is a fine, light yellow crystalline powder, stable in air. It melts at 220°C with a noticeable decomposition. It is soluble in water without a noticeable hydrolysis. The solubility at 90°C is about 2.8 g/l. It is practically insoluble in diethyl ether. The above property was used for the separation of thorium from considerably larger quantities of uranium. It was found that in order to obtain a complete precipitation and extraction of thorium, the pH of the solution should be above 3. However, if uranium is present in larger quantities, the extraction of thorium is difficult, therefore the method of direct separation of uranium and thorium by extraction of thorium phenylacetate with ether is limited to similar concentrations of thorium and uranium. At higher concentrations of uranium a satisfactory separation can be obtained in the presence of hydroxylamine (for combining uranium into a complex) at a pH of about 4.5. There are 2 figures, 3 tables and 2 references: 1 Soviet-bloc and 1 non-Soviet-bloc.

SUBMITTED: June 17, 1959

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TSEKOVNITSKAYA, I.A.; CHARYKOV, A.K.

Development of a scheme for the analysis of uraninite. Uch. zap.
LGU no.297:109-118 '60. (MIRA 13:11)
(Uraninite)

36490

S/186/62/004/002/006/010
E075/E136

21.4200

AUTHORS: Tserkovnitskaya, I.A., and Charykov, A.K.

TITLE: Study of the possibility of extractive separation of thorium from some other elements by the method of radioactive tracers

PERIODICAL: Radiokhimiya, v.4, no.2, 1962, 184-188

TEXT: The authors aimed to develop a method giving a more complete separation of Th and the rare earth elements than that described previously by them (Ref.1: Radiokhimiya, v.2, no.2, 1960, 222) by considering the possibility of preventing coprecipitation during the extraction. It was found that Th can be quantitatively separated from La by extracting thorium phenylacetate with ethyl ether in the pH range of 3 to 4.5. The separation of Th from large amounts of Ce can be achieved successfully by extraction in the presence of hydroxylamine. Correct pH for the extraction depends on the ratio of Ce to Th and tends towards the lower (acid) values when the ratio increases. Many cations including K, Na, Hg^{2+} , Pb^{2+} and some

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others do not affect the extraction. Certain cations such as Al^{3+} and Fe^{3+} , even in negligible quantities, make the extraction more difficult especially at higher than 4 values of pH. It is therefore necessary to remove both Al and Fe from the mixture before the extraction. The new method is suitable for a rapid and complete separation of small quantities of Th (of the order of 2 mg) and gives a possibility of carrying out a volumetric finish. The authors intend to apply the method for the determination of small amounts of Th in various mixtures containing U, and the rare earth elements. There are 7 tables.

SUBMITTED: June 17, 1959

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L 56568-65 EWT(m) RM
ACCESSION NR: AP5018631

UR/0153/64/007/004/0544/0550

AUTHOR: Tsarkovnitakaya, I. A.; Charykov, A. K.

TITLE: Some properties of organic salts of thorium 1

SOURCE: IVUZ. Khimiya i khimicheskaya tekhnologiya, v. 7, no. 4, 1964, 544-550

TOPIC TAGS: thorium, organic salt

ABSTRACT: The compositions of salts of thorium with organic acids of various classes (fatty acids, dibasic acids, aliphatic-aromatic acids, various substituted benzoic acids, and disubstituted benzoic acids) were studied as a function of the pH of the precipitation. A number of compounds capable of being extracted by butyl alcohol were found among the organic salts of thorium. Many hydrolyzed--basic--salts of thorium were found to be capable of flotation in organic solvents. Patterns were outlined in the composition and ability for extraction among the various classes of organic salts of thorium. Orig. art. has 1 formula, 5 graphs, and 3 tables.

ASSOCIATION: Kafedra analiticheskoy khimii, Leningradskiy gosudarstvennyy universitet im. A. A. Zhdanova (Department of Analytical Chemistry, Leningrad State University)

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L 56568-65

ACCESSION NR: AP5018631

SUBMITTED: 21Sep62

ENCL: 00

SUB CODE: GC

NO REF SOV: 003

OTHER: 012

JPRS

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Card 2/2

CHARYKOV, B. S.

GUREVICH, Ye.S.; RADIONOVA, T.V., redaktor; CHARYKOV, B.S., redaktor;
SINYAGIN, I.I. redaktor.

[Plans for the development of the "Rossia" collective farm]
O perspektivnom plane razvitiia kolkhosa "Rossia." Pod red. I.I.
Siniagina. [Moskva] Red.-izd. otdel VASKhNIL, 1957. 229 p.

(MLRA 10:6)

1. Vsesoyuznaya Akademiya sel'skokhozyaystvennykh nauk imeni V.I.
Lenina. 2. Ispolnyayushchiy obyazannosti akademiika-sekretarya
prezidiuma Vsesoyuznoy Akademii sel'skokhozyaystvennykh nauk
imeni V.I. Lenina i chlen-korrespondent Akademii nauk SSSR (for
Sinyagin).

(Collective farms)

CHARYKOV, N.

Important department of industrial management. Sets. trud 7 no.11:
45-47 N '62. (MIRA 15:12)

1. Nachal'nik otdela ekonomiki proizvodstva Sverdlovskogo proyektno-
tekhnologicheskogo instituta.
(Sverdlovsk Province—Machinery industry—Production standards)

CHARYKOV, N.; YUROVSKAYA, M.

Improve wage planning. Sots. trud 7 no.8:48-54 Ag '62.
(MIRA 15:10)

(Wages)

CHARYKOV, N.

Establishment of technical norms should be the basis of planning.
Sots. trud 8 no.9:98-101 S '63. (MIRA 16:10)

YERIN, Boris Gerasimovich, kand.tekhn.nauk; CHERKASOV, Valentin
Valentinovich, kand.tekhn.nauk; OZE, Sergey Edgarovich, inzh.;
CHARUYSKIY, A.P., red.; IYEVLEVA, T.A., red.izd-va; GALAKTIONOVA,
Ye.M., tekhn.red.

[Quality control of bridge construction operations] Kontrol'
kachestva mostostroitel'nykh rabot. Moskva, Nauchno-tekhn.izd-vo
M-va avtomobil'nogo transp. i shosseinykh dorog BSFSR, 1960.
117 p. (MIRA 14:3)

(Bridge construction)

CHARYKULIYEV, D.M.

The flies Miltogrammatinae as new parasites of locusts. Izv. AN
Turk. SSR. Ser. biol. nauk no.5:78-81 '61. (MIRA 14:12)

1. Institut zoologii i parazitologii AN Turkmenskoy SSR.
(MURGAB VALLEY--FLIES) (PARASITES--LOCUSTS)

CHARYKULIYEV, D.M.

A new species of the genus *Efflatounomyia* Rohd. from Turkmenistan
(Diptera, Sarcophagidae). Izv. AN Turk. SSR. Ser. biol. nauk
no.4:88-89 '63. (MIRA 16:9)

1. Institut zoologii i parasitologii AN Turkmeniskoy SSR.
(Murgab Valley--Flesh flies)

CHARYKULIYEV, D.M.; MYARTSEVA, S.N.

Biology of flies of the subfamily Miltogrammatinae (Diptera,
Sarcophagidae). Izv. AN Turk. SSR. Ser. biol. nauk no. 2: 84-88
'64. (MIRA 17:6)

1. Institut zoologii i parazitologii AN Turkmenkoy SSR.

CHARYKULIYEV, D.

Various habitats of gray flesh flies (Diptera, Sarcophagidae)
in the lower Murgab Valley. Izv. AN Turk. SSR Ser. biol. nauk
no.3:56-62 '64 (MIRA 18:2)

1. Institut zoologii i parazitologii AN Turkmenskoy SSR.

VERKHOVSKIY, A.V., prof.; GLYAVIN, Yu.V., dots.; LUPANOVA, O.K., dots.; MOKEYEV, I.I., dots.; USPENSKAYA, A.N., dots.; PONOMAREV, M.G., dots.; CHARYSHNIKOV, K.A., st. prepod.; ARANOVICH, V.M., assistant; PLOTNIKOV, G.I., assistant; PELEVINA, T.I., red.

[Handbook for the solution of problems on the strength of materials] Posobie k resheniiu zadach po soprotivleniiu materialov. Volgo-Viatskoe knizhnoe izd-vo, 1965. 319 p. (MIRA 19:1)

1. Gorki. Politekhnikheskiy institut. 2. Kafedra "Soprotivleniye materialov" Gor'kovskogo politekhnikheskogo instituta (for all except Pelevina).

BROD, J.; HORNYCH, A.; VAVREJN, B.; PRAT, V.; KOTKOVA, E.; DEJDAR, R.;
OPPELT, A.; CHARVAT, P.

Isotope renography in the diagnosis of chronic pyelonephritis.
Cas. lek. Cesk. 104 no.52:1409-1420 24 D '65.

1. Ustav pro choroby obehu krevniho v Praze (reditel prof.
dr. J. Brod, DrSc.) a Vyzkumny ustav pro vyuziti radioizotopu
v lekarstvi (vedcuci MUDr. B. Vavrejn, CSc.).

Charyyev, A.

PHASE I BOOK EXPLOITATION

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Turkmen S.S.R. Statisticheskoye upravleniye

Narodnoye khozyaystvo Turkmenkoy SSR; statisticheskiy sbornik
(National Economy of the Turkmen S.S.R.; Statistical Tables)
Ashkhabad, Gosstatizdat, 1957. 171 p. 5,000 copies printed.

Resp. Ed.: Charyyev, A.; Tech. Ed.: Strel'tsov, E. M.

PURPOSE: This book contains a series of statistical tables, and it is intended to provide statistical data on the growth of the national economy of the Turkmen S.S.R.

COVERAGE: The tables which are included in this book give basic indexes on the development of the national economy of the Turkmen S.S.R. for various years during the period between 1913 and 1956, using 1913, 1928 and 1940 as a basis of comparison.

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-National Economy (cont.)

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Some of the data are tabulated by oblast. Data for 1956 are not yet complete. A few indexes indicate industrial targets for 1960 as directed by the 20th Congress of the CPSU. Data on some branches of the national economy are not included because the Statistical Department of the Turkmen S.S.R. intends to issue separate reports with more detailed information on these branches of the national economy. The following personalities took part in the preparation of various sections of this book, agriculture: Lyko, B.A. (deceased), Ivantsov, V.I., Grigor'yeva, S.I., and Bel'fer, A.Ye.; industry, transport and communications: Yezhova, M.Ye., Kuznetsov, N.D., and Man'shina, K.V.; capital construction: Donskova, N.I.; employment: Timofeyev, B.G., Panfilov, V.V.; commodity trade: Mel'kumova, A.I., Alferova, A.V.; culture, population, and public health: Roslyakov, A.A., Alianazarov, P., Gasanova, Kh.A.; editor of this volume: Charyyev, A.; General Editor: Safarmamedov, A.

Card 2/26

CHARYIN, B.Ch.

Hydrochemical conditions of the Kara-Bogas-Gol (Gulf) and physico-chemical characteristics of its brines at different stages of concentration and cooling. Izv. AN Turk. SSR no.1:3-14 '57.

(MLPA 10:4)

- 1. Sovet Ministrov Turkmensoy SSR.
(Kara-Bogas-Gol (Gulf)--Saline water)**

CHARYYEV, G.A.

~~Development of sciences in Soviet Turkmenistan. Izv.AN Azerb.SSR~~
no.5:3-8 My '57. (MLRA 10:8)
(Turkmenistan--Research)

AUTHOR: Charyyev, G.A., Professor; President SOV/26-59-1-13/34

TITLE: In the Interests of Development of the National Economy of the (Turkmenian) Republic (V interesakh razvitiya narodnogo khozyaystva respubliky)

PERIODICAL: Priroda, 1959, ⁴⁸Nr 1, pp 32-33 (USSR)

ABSTRACT: Rich deposits of oil, coal, diverse ores and, in the Kara-Bogas-Gol area, huge resources of salts, other chemical raw materials and such rare elements as bromine, iodine and an unlimited amount of diverse construction materials, make Turkmenia an important economic factor in the new plan. The Institut geologii (Institute of Geology) of the Turkmenian AS will investigate the laws and regularities in the distribution of natural resources in the Republic, in order to expedite the establishment of the USSR's "Third Baku" in Turkmenia. Present research deals chiefly with the new oil and natural gas regions in south-east Turkmenia, with central Turkmenia, the ~~predkoptadag~~ depression, and the ~~Sangusakiye Karakumy~~ to follow. Certain indications of volcanic origin in the southwest of the Republic seem to indicate the presence of oil and natural gas. The

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In the Interests of Development of the National Economy of the (Turkmenian) Republic

construction of a canal through the Karakum Desert is being prepared by complex studies. The aridity of vast territories of the Republic is to be overcome by a close investigation of the subterranean waters there. Another problem to be solved is the sand drifts across the greater part of the Republic. The Institut khimii (Chemical Institute), established in 1957, is to concentrate its forthcoming efforts on the synthesis of diverse organic substances on the basis of the local oil products, to study the special qualities of the different kinds of oil occurring in the Cheleken area, to study the effects of insecticides and plant growth stimulants, and to investigate such substances in local cotton plants as oil, gossypol and tanning agents, of which there are 5 to 15% in the seeds. The natural-salt riches of the Kara-Bogaz-Gol Bay and the Kuuli, ~~Uzunsa~~ and Baba-Khadzha lakes, the Uzboy river bed and other sites, must be studied in detail with respect to their best utilization. A thorough investigation of the Republic's flora and fauna for agricultural, economic and medical purposes is

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In the Interests of Development of the National Economy of the (Turkmenian) Republic

SOV/26-59-1-13/34

imperative. There is 1 photo.

ASSOCIATION: Akademiya nauk Turkmenskoy SSR, Ashkhabad (The AS of the Turkmen SSR, Ashkhabad)

Card 3/3

SEYRADOV, M.D.; CHARYYEVA, G.N.

Casualties of extrauterine pregnancy. Zdrav.Turk. 7 no.1:25-
26 Ja '63. (MIRA 16:3)

1. Iz akushersko-ginekologicheskoy kliniki (zav. - dotsent
M.D. Seyradov) Turkmenanskogo gosudarstvennogo meditsinskogo insti-
tuta.

(PREGNANCY, EXTRAUTERINE)

CHARYYEV, G. O.

AUTHOR: Charyyev, G. O., Academician of the AS Turkmen 30-10-11/26
SSR.

TITLE: Problems of Aseismic Construction (Voprosy seysmostoykogo stroitel'stva).

PERIODICAL: Vestnik AN SSSR, 1957, October, Nr 10, pp. 86-87 (USSR)

ABSTRACT: The Institute of Aseismic Construction in Turkmenia was principally occupied with the technology of building materials from native deposits.
The behavior of concrete in the dry, hot climate of Turkmenia was most carefully investigated and an approved instruction was issued.
Moreover, both brick- and concrete constructions of various kind were investigated with respect to their earth-quake resistance and standard specifications were established for such buildings in connection with which considerable savings of iron can be made by new features of construction. Newly designed telegraph poles which have proved useful, were elaborated in co-operation with the Turkmen SSR Ministry

Card 1/2

Problems of Aseismic Construction

30-10-11/26

of Communications.

AVAILABLE: Library of Congress

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CHARYYEV, K.A.

Treatment of burns of the eye. Trudy Turk.nauch.-issl.trakh.inst.
6:127-131 '60. (MIRA 15:11)
(EYE—WOUNDS AND INJURIES) (BURNS AND SCALDS)

CHARYYEV, M. K., Candidate Biol Sci (diss) -- "The soil cover of the Kizyl-Arvat piedmont plain of the Turkmen SSR". Ashkhabad, 1957. 17 pp (Min Higher Educ USSR, Kazan' Order of Labor Red Banner State U in V. I. Ul'yanov-Lenin), 135 copies (KL, No 25, 1959, 131)

CHARYYEV M.K.

USSR / Soil Science: Genesis and Geography of Soils.

J-2

Abs Jour : Ref. Zhur * Biologiya, No 17, 1958, No. 77365

Author : Charyyev, M. K.

Inst : AS Turkmen SSR

Title : Geography of the Soils of the Kizylarvat Foothill Plain
and an Evaluation of Their Agricultural Development

Orig Pub : Izv. AN Turkmen SSR, 1957, No 1, 51-58

Abstract : Four soil zones stand out within the Kizylarvat plain in southwest Turkmenia: the raised foothill with serozems, light takyr-like and grey-brown soils; the upper part of the foothill plain with undeveloped serozems and takyr-like soils, with patches of takyrs with lichens; the middle part of the plain with takyrs with lichens and algae, with meadow and takyr-soils; the lower zone of the plain with alluvial (young) soils, with khak-takyrs, solonchaks and typical (algae) takyrs. The morphological

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USSR / Soil Science. Genesis and Geography of Soils.

J-2

Abs Jour : Ref. Zhur - Biologiya, No 17, 1958, No. 77365

and some physical-chemical properties of the soils are described (mechanical and aggregate composition, specific weight, volume weight, content of humus, N, content of water-soluble salts, filtration properties). A schematic soil map is cited. -- F. I. Shcherbak.

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Charyyev, M.K.

CHARYYEV, M.K.

The nature of typical Sierozem desert soils of Kizyl-Arvat District.
Izv. AN Turk.S.S.R. no.3:102-106 '57. (MIRA 10:10)

1. Turkmenskiy nauchno-issledovatel'skiy institut zemledeliya.
(Kizyl-Arvat District--Sierozem soils)

CHARYYEV, O.

CHARYYEV, O. -- "The Possibility of Fat Embolism Following the Injection of Oil Solutions of Novocaine for the Purpose of Protracted Anesthesia." Turkmen State Medical Inst imeni I. V. Stalin. Ashkhabad, 1955. (Dissertation for the Degree of Candidate in Medical Sciences)

SO: Knizhnaya Letopis', No 1, 1956

CHARYYEV, O.; ATANIYAZOVA, K.S.

Rare case of invagination of the vermiform process and of part of the wall of the cecum into the ascending colon. Zdrav. Turk. 4 no.5:42 S-0 '60. (MIRA 13:12)

1. Iz Maryyskoy oblasti bol'nitsy (glavnyy vrach - Kh.Sh. Dzhannamedov).
(~~INTESTINES~~—INTUSSUCEPTION) (CECUM)
(APPENDIX (ANATOMY))

CHARYYEV, O.; ATANIYAZOVA, K.S.

Case of constriction of the appendix, the loop of the small intestine
and the omentum ~~in~~ femoral hernia. Zdrav. Turk. 5 no.6:25-26 N-D '61.
(MIRA 15:2)

1. Iz Maryyskoy oblastnoy bol'nitsy (glavnyy vrach - Kh.Sh.
Dzhanmamedov).

(HERNIA)

(INTESTINES—DISEASES)

(OMENTUM—DISEASES)

KORNIYENKO, Z.P., doktor veterinarnykh nauk (Koneva); TENDETNIK, Yu.Ya.,
meditsinskiy vrach; CHARYYEV, O.Ch., veterinarnyy vrach.

Using a predaceous fungus for ridding horse manure of strongyloid
larvae. Veterinariia 33 no.11:74 N '56. (MLRA 9:11)
(Fungi) (Nematoda)

CHARYYEV, O.M.

Central injection of hot petroleum in rod beam-well production
using a device for pouring liquid from pipes. Nefteprom. delo
no.3:20-22 '65. (MIRA 18:10)

1. Turkmenskiy filial Vsesoyuznogo neftegazovogo nauchno-issledo-
vatel'skogo instituta.

CHARYYEV, R.

Morphology of the carp (*Cyprinus carpio* L.) of the Kara Kum
Canal. Izv. AN Turk. SSR. Ser. biol. nauk no. 5: ~~81-86~~ '65.
(MIRA 18:11)

1. Institut zoologii i parazitologii AN Turkmenskoy SSR.

CHARYYEV, R.

Sexual maturity of one-year-old carp (*Cyprinus carpio* L.). Izv.
AN Turk.SSR.Ser.biol.nauk no.1:81-83 '65.

(MIRA 18:5)

1. Institut zoologii i parazitologii AN Turkmenской SSR.

RADYUKOVA, S.A.; CHARYYEVA, T.P.

Rhythmical heart disorders in myocardial infarction in the climate of Ashkhabad. Zdrav. Turk. 6 no.1:8-12 Ja-F '62. (MIRA 15:4)

1. Iz kafedry gosptal'noy terapii (sav. - dotsent G.K.Khodzhakuliyev) Turkenskogo meditsinskogo instituta.
(ASHKHBAD--HEART--INFARCTION) (ARRHYTHMIA)

CHARZEWSKA, Jadwiga; KOWALSKA, Irena

Contemporary problems of endocrinology; a scientific conference
in Warsaw. Kosmos biol 11 no.5:569-574 '62.

CHARZEWSKA, Jadwiga; WOLANSKI, Napoleon

"Mankind evolving, the evolution of the human species" by
Theodosius Dobzhanski. Reviewed by Jadwiga Charzewska,
Napoleon Wolanski. Kosmos biol 12 no. 4:383-392 '63.

WOLANSKI, Napoleon; CHARZEWSKA, Jadwiga

Report from the Seventh International Congress of Anthropological
and Ethnographical Sciences. Kosmos biol 14 no.1:98-99 '65.

CHARZEWSKI, Janusz

Report from the scientific conference on "Contemporary problems
of endocrinology." Wszechswiat no.7/8:215 J1-Ag '62.

Charzyński, Zygmunt

Charzyński, Zygmunt, et Janowski, Witold. Sur l'équation générale des fonctions extrémales dans la famille des fonctions univalentes bornées. Ann. Univ. Mariae Curie-Skłodowska. Sect. A. 4, 41-56 (1950). (French. Polish summary)

Let F represent the family of functions $f(z) = a_1 z + \dots$ univalent and satisfying $|f(z)| < 1$ in $|z| < 1$. Let F_T represent the subset of F for which $a_1 \geq T$, $0 < T < 1$. For a functional $K(f)$ defined and real in F , the authors define the notions of differentiability and differential. They then prove that each function $w = f^*(z)$ of F for which $K(f)$ attains its maximum value, as the property that on $|z| = 1$, there is an open arc C such that f^* is analytic on C and transforms C into an arc of $|w| = 1$. They then derive a differential equation satisfied by f^* on C . They also show that the first coefficient a_1 of the expansion of all extremal functions is equal to T .

G. Springer (Evanston, Ill.).

Source: Mathematical Reviews,

Vol. 13 No. 2

Paul L. Jones

CHAKZYNSKI, Z.

Mathematical Reviews
Vol. 15 No. 1
Jan 1974
Analysis

Chakzyński, Zygmunt. Sur les fonctions univalentes bornées. Rozprawy Mat. 2, 58 pp. (1953).

The author devotes most of this article to a derivation of a differential equation satisfied by an extremal bounded univalent function. Let F_T be the family of analytic functions $f(z) = \sum_{n=1}^{\infty} a_n z^n$, $a_1 \geq T > 0$, which are univalent and bounded ($|f(z)| < 1$) in the unit circle $|z| < 1$. Let

$$a_n/a_1 = X_n + iY_n, \quad n=2, 3, 4, \dots,$$

and

$$H_f = H(X_1, \dots, X_N, Y_1, \dots, Y_N), \quad N \geq 2,$$

be any real function of the $2N-2$ real variables, with continuous first partial derivatives. Then there exist extremal functions $f^*(z)$ in F_T for which H_f assumes its largest value. Each extremal satisfies the differential equation

$$[f^{**}(z)/f^*(z)] \Re[f^*(z)] = z^{-1} \Re(z), \quad 0 \leq |z| < 1,$$

where

$$\Re(w) = \left[\sum_{p=2}^N \frac{\Re^*_{p-1}}{w^{p-1}} + \overline{\Re^*_{p-1}} w^{p-1} \right] - 2\Re^*,$$

$$\Re(z) = \left[\sum_{p=2}^N \frac{\Re^*_{p-1}}{z^{p-1}} + \overline{\Re^*_{p-1}} z^{p-1} \right] - 2\Re^*,$$

$$[f^*(z)]^p = \sum_{n=1}^{\infty} a_n^{*(p)} z^n, \quad p=2, 3, \dots,$$

Charzynski, Zygmunt 2/2

$$f^*(z) = \sum_{n=1}^{\infty} a_n^* z^n, \quad a_n^*/a_1^* = X_n^* + iY_n^*, \quad n=2, 3, \dots,$$

$$H_n^* = H_{X_n}(X_2^*, \dots, X_N^*, Y_2^*, \dots, Y_N^*)$$

$$-iH_{Y_n}(X_2^*, \dots, X_N^*, Y_2^*, \dots, Y_N^*),$$

$$n=2, \dots, N,$$

$$\mathcal{D}_{p-1}^* = 2 \sum_{n=p}^N a_n^* H_n^*, \quad p=2, \dots, N,$$

$$\mathcal{E}_0^* = \sum_{n=2}^N (n-1) a_n^* H_n^*, \quad \mathcal{E}_{p-1}^* = 2 \sum_{n=p}^N (n-p+1) a_n^* H_n^*,$$

$$p=2, \dots, N,$$

and

$$\mathcal{P}^* = \min_{0 \leq x \leq 2\pi} R \left\{ \sum_{p=2}^N \mathcal{D}_{p-1}^* e^{ix(p-1)} \right\}.$$

$\Re(w)$ and $\Re(z)$ take on only real, non-negative values on

the circumferences $|w|=1$ and $|z|=1$ resp., and each has at least one double zero there. Also, $a_1^* = T$. A more general result had previously been published by the author with W. Jąkowski [Ann. Univ. Mariae Curie-Skłodowska. Sect. A. 4, 41-56 (1950); these Rev. 13, 122]. The last few pages are devoted to proving the following orthogonality relation for the coefficients $a_n^{(p)}$ in $f(z)^p = \sum_{n=1}^{\infty} a_n^{(p)} z^n$ where $f(z)$ is a bounded univalent function in $|z| < 1$ which transforms $|z| < 1$ into a region with the same measure:

$$\sum_{n=1}^{\infty} \left(\frac{n}{k} \right)^{1/2} a_n^{(k)} \overline{\left(\frac{n}{m} \right)^{1/2} a_n^{(m)}} = \begin{cases} 0 & \text{for } k \neq m \\ 1 & \text{for } k = m, \end{cases} \quad k, m = 1, 2, \dots$$

G. Springer (Evanston, Ill.).

CHARZYNSKI, ZYGMUNT.

SCIENCE

CHARZYNSKI, ZYGMUNT. Sur les fonctions univalentes algebriques bornees.
Warszawa, Panstwowe Wydawn. Naukowe, 1955. 39 p. (Rozprawy matematyczne, 10)
NIU Not in DLC

Monthly List of East European Accessions (EEAI) LC. Vol. 8, No 4,
April, 1959, Unclass.

CHARZYNSKI, Z.

SCIENCE

Periodical: KOSMOS. SERIA A: BIOLOGIA. Vol. 8, no. 2, 1957. In French.

CHARZYNSKI, Z. Certain conditions necessary and sufficient for holomorphic functions being one-valued and bounded within the unity circle. p. 1.

Monthly List of East European Acessions (EEAI), LC, Vol. 8, No. 3, May 1959
Unclass.

Variational Methods in the Theory of Univalent Functions ¹⁶

Charzyński, Z. Méthodes variationnelles dans la théorie des fonctions univalentes. Bull. Math. Soc. Sci. Math. Phys. R. P. Roumaine (N.S.) 1 (49) (1957), 259-264.

The author surveys some of the published results by Janowski and himself concerning bounded univalent functions. In the last part of the paper, he announces two theorems about algebraic univalent functions. Let (1) $P(w) = w + C_2 w^2 + \dots + C_L w^L$ and let μ be the component of the set $\{w : |P(w)| < 1\}$ containing $w=0$. Then in order that there exist an algebraic univalent function (2) $A(z) = z + a_2 z^2 + \dots$ satisfying (3) $P(A(z)) = z$ mapping $|z| < 1$ onto μ , it is necessary and sufficient that the roots of $P(w)$ (except 0) and all the roots of $P'(w)$ be located exterior to or on the boundary of μ . He then states two conditions satisfied by an extremal in the class of algebraic univalent functions of the form (2) satisfying an equation of the form (3) where $L \leq S$ in (1).

G. Springer (Lawrence, Kan.)

2
1-F1W

CHARZYNSKI, Z. (Lodz)

On certain general evaluations of an analytical function of two variables in the vicinity of isolated zero. Colloquium mathem
9 no. 1:115-118 '62.

CHARZYNSKI, Z. (Lodz); ZIEBA, A. (Wroclaw)

Zamorski, Jan, December 27, 1927 - December 28, 1961.
Col math 10 no.2:361-364 '63.

CHALZYNSKI, Z. (Lodz); KRZYWICKI, A. (Wroclaw); ZAMORSKI, J. (Wroclaw)
[deceased].

Witold Wolibner, September 9, 1902 - January 9, 1961. Col
math 10 no.2:353-360 '63.

CHACZYŃSKI, Z.; LAFYŃOWICZ, J. (1963)

~~On conformality points of certain mappings preserving locally the~~
~~area. Col Math 13 no.1:81-93 '64.~~

1. Institute of Mathematics of the Polish Academy of Sciences.
Submitted December 30, 1963.

L 21465-66 T DJ

ACC NR: AP6011974

SOURCE CODE: CZ/0057/65/000/007/0265/0267

AUTHOR: Chasak, Frantisek

ORG: VZKG, Ostrava

TITLE: Lubrication method in the sintering plant of the Klement Gottwald Vitkovice Iron Works

SOURCE: Hutnik, no. 7, 1965, 265-267

TOPIC TAGS: grease, lubrication, molybdenum compound/K3 grease, KL30 grease

ABSTRACT: Before the modifications of the lubrication methods better quality grease "K3" was used everywhere; now where the duty allows it, the K3 was replaced by the cheaper KL 130. " In the past all the equipment was lubricated continuously; now it is lubricated periodically, which requires more work by the personnel, but saves grease. The purity of the greases is investigated thoroughly, and all foreign bodies filtered out; more care is taken to prevent dust entering the bearings "during repairs. Lubrication by molybdenum sulfide "in suitable application was introduced. The grease cups are not filled full to allow movements in the lubrication medium. During 1964, average consumption of lubricants was 25 kg per ton of sintered product. Orig. art. has: 3 figures. [JPRS]

SUB CODE: 11 / SUBM DATE: none

Cord 1/1 ddr

CHASAK, Karel

Cooperation with workers is profitable. Prace mzda 11 no.6:
281-283 Je '63.

1. Predseda Krajskeho vyboru Odboroveho svazu zamestnancu ve
strojirenstvi, Plzen.

ZAGMEN, Jiri, inz.; CHASAK, Robert

Determining carbon and hydrogen in fuels by the high-temperature
Sheffield method. Uhlí 5 no.1:21-22 Ja '63.

1. Vedeckovýzkumný uhelný ústav, Ostrava - Radvanice.

L 45340-66 EWP(j)/EWP(t)/ETI IJP(c) JD/RM	
ACC NR: AT6033597	SOURCE CODE: HU/2502/66/047/001/0037/0052
AUTHOR: <u>Csaszar, Jozsef--Chasar, I.</u> (Doctor; Szeged); <u>Felvegi, Anna</u> (Szeged) 43	
ORG: <u>Institute for General and Physical Chemistry, Szeged University, Szeged</u> B+!	
TITLE: Magnetic and spectroscopic investigation of polynuclear <u>complex</u> cyanides	
SOURCE: Academia scientiarum hungaricae. Acta chemica, v. 47, no. 1, 1966, 37-52	
TOPIC TAGS: cyanide, spectroscopy	
ABSTRACT: The magnetic susceptibility characteristics, absorption spectra, and reflection spectra of 22 polynuclear complex cyanides of potassium, iron, cobalt, nickel, and copper with iron, cobalt, nickel, ammonia, and platinum were determined and the data (presented in detail) analyzed. In most instances the structures appeared the same as those of the corresponding hydrated ions. The initial structures of Turnbull Blue and of Prussian Blue are identical; subsequent changes in hue were attributed to charge-transfer processes. Orig. art. has: 12 figures and 4 tables. [Orig. art. in Eng.] [JPRS: 34,669]	
SUB CODE: 07, 20 / SUBM DATE: 01Jul65 / ORIG REF: 003 / OTH REF: 038	
<u>Nitrogen Compounds</u>	
Card 1/1 <i>LC</i>	

CHASCHIN, M.

Very efficient turning on front lathes. p. 76.
STROJIRENSKA VYROBA, Prague, Vol. 4, no. 2, Feb. 1956.

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 5, No. 6,
June 1956, Uncl.

ANDREYEV, V.; CHASHCHARIN, B.

The horn sounds at the river. IUn. nat. no. 7:14-19 JI '61.

(MIRA 14:7)

1. Pionerskiy lager' imeni Sergo Ordzhonikidze, Yaroslavskaya oblast'.

(Nature study) (Sosnovka--Camps)

BOBNEVA, N.; CHASHCHARIN, B.

Forest in the Zhiguli Mountains. IUn. nat. no.9:5-9 S '61.

(MIRA 14:8)

1. 48-ya vos'miletnyaya shkola, Kuybyshev.
(Nature study)

BOBNEVA, N.; CHASHCHARIN, B.

In a poultry town. IUn.nat. no.3:23-25 Mr '62.
(Poultry)

(MIRA 15:4)

CHASHCHARIN, B. (g. Staraya Russa, Novgorodskaya oblast')

From the source to the mouth. IUn.nat. no.7:20-21 J1 '62.
(MIRA 15:8)

(Porus'ya River--School excursions)

KORNESHOV, L.; CHASHCHARIN, B.

Those who meet the sun. IUn. nat. no.2:13-17 F '63.

(MIRA 16:11)

1. Spetsial'nyye korrespondenty zhurnala "Yunyy naturalist".

BOBNEVA, Nadezhda; **CHASHCHARIN**, Boris.

Mysteries of Charokayka. IUn. nat. no.4:9-11 Ap '63.

(MIRA 16:7)

(Zhguli Mountain Region—Water, Underground)

ANDREYEV, V.; CHASHCHARIN, B.

~~XXXXXXXXXX~~
Agricultural experimentation in schools. IUn. nat. no.6:21-
23 Je '63. (MIRA 16:8)

CHASHCHEGOROV, S.N., inzhener.

Automatic machining of edges of frames used for big-size molds.
Mashinostroitel' no.2:14-16 P '57. (MLRA 10:5)
(Woodworking machinery)

CHASHCHEGOROV, S.M.

**Mechanisation of labor consuming and manual operations in making
models. Mashinostroitel' no.8:9-11 Ag '57. (MIRA 10:8)**

(Models and modelmaking) (Woodworking machinery)

CHASHCHEGOROV, S.N.

Developing patternmaking. Sbor.st.UZTM no.4:19-27 '58.

(MIRA 11:12)

(Sverdlovsk--Patternmaking)

CHASHCHEGOROV, S.N.

25(1)

PHASE I BOOK EXPLOITATION

SOV/1370

Ural'skiy zavod tyazhelogo mashinostroyeniya, Sverdlovsk

Proizvodstvo krupnykh otlivok (Making of Large Castings) Moscow,
Mashgiz, 1958. 108 p. (Series: Its: Sbornik statey, vyp. 4)
5,500 copies printed.

Ed.: Fetisov, I.M., Engineer; Exec. Ed. (Siberian Division, Mashgiz):
Kaletina, A.V., Engineer; Tech. Ed.: Dugina, N.A.

PURPOSE: The book is prepared by the Plant organization of NTOMashprom
(Scientific and Technical Society of Machine Building Industry) and
is intended for engineering and scientific workers.

COVERAGE: The book was prepared for the 25th Anniversary of the
Uralsmashzavod (Ural Heavy Heavy Machinery Building plant imeni
S. Ordzhonikidze). The stages of founding development in the plant
and the plant's progress and achievements in this field are described.

Card 1/3

Making of Large Castings

SOV/1370

The book includes articles on the most interesting research work concerning improvement of the quality of castings and economy of labor. The results of an investigation of the causes of cracks in castings weighing up to 80 tons are presented; the nature of stone-like fractures and methods for combating them are described; experience in hardening molds and cores is analyzed. Also described is oxygen heating-up of cast iron in the spout of a cupola furnace. No personalities are mentioned. There are no references.

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Card 2/3

Making of large Castings

SOV/1370

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Yamshanov, P.I., and T.A. Tyuleneva. Cracks in Steel Castings	99

AVAILABLE: Library of Congress

Card 3/3

GO/ksv
4-21-59

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SOV/117-59-8-29/44

AUTHOR: Chashchegorov, S.N., Production Engineer

TITLE: Efficiency Experts of the Uralmashzavod

PERIODICAL: Mashinostroitel', 1959, Nr 8, p 29 (USSR)

ABSTRACT: Semen Safronovich Druzhinin, foreman of the pattern shop, is an outstanding improver, who has been working at the Uralmashzavod since 1931. A machine for making pattern joint tenons designed and made by him requires one man only, and supplies the entire pattern shop with round tenons which have doubled the strength of core boxes. There is 1 photo.

Card 1/1

CHASHCHEGOROV, S.N.

High-speed wood drying. Biul.tekh.-ekon.Gos.nauch.-issl.inst.
nauch i tekhn.inform. 16 no.10:66-67 '63. (MIRA 16:11)

CHASHCHIN, A.M., glavnyy inzhener; GULYAYEV, B.M.

Extend the production of faolite spigots. Der.1 lesokhim.prom. 2 no.9:
30-31 S '53. (MLRA 6:8)

1. Dmitriyevskiy lesokhimicheskiy savod (for Chashchin). 2. TsNILKhl.
(Faucets) (Metals, Substitutes for)

CHASHCHIN, A.M.

Using steel reactors for the production of acetic acid. Der. 1
lesokhim.prom. 3 no.10:23-25 0 '54. (MLRA 7:11)

1. Glavnyy inzhener Dmitriyevskogo lesokhimicheskogo zavoda.
(Acetic acid)

CHASHCHIN, A.M.

Replacement of nonferrous metals in acid acid rectifica-
tion columns. B. N. Gulyaev and A. M. Chashchin.
Gidrotex. i Lestokh. Prom. 8, No. 3-4-1966. The
column for distill. of AcOH (the corpn. of the charge
65% of AcOH, 8-10% of HCOOH, small quantities of pro-
pionic and other acids, some esters) has a frame of cast iron,
which is lined with 2 layers of ceramic tiles, prep'd. as
follows: 1 kg. of diabase powder, 50 g. of Na fluosilicate,
250 g. of Na silicate, with Cu plates at places where tiles
cannot be used. Column plates are made of ceramic mass,
glass, wood plastics, copper metal, asbestos vinyl, and Cr-
Ni steel. Diabase cement is used to seal plates to the frame.
Steam pipes are made of glass and wood plastics. Gray
iron is inferior to steel, and a heat-stable ceramic material
has been found the most dependable. In place of the
ordinary glass a special heat-resistant glass is recommended.
T. Jurek

CHASHCHIN, A.M.; KULAKOV, P.I., inzhener antikorrozionnoy sluzhby

**Equipment corrosion control. Gidroliz. i lesokhim. prom. 8 no.4:22-23
'55. (MIRA 8:9).**

**1. Glavnyy inzhener Dmitriyevskogo lesokhimicheskogo zavoda (for
Chashchin). (Wood—Chemistry) (Corrosion and anticorrosives)**

CHASHCHIN, A.M.

SUMAROKOV, Viktor Pavlovich; GORDON, Lev Vladimirovich; PLATUNOV, N.A.,
retsensent; CHASHCHIN, A.M., retsensent; SNESAREV, K.A., redaktor;
PEDOROV, B.M., redaktor izdatel'stva; KARASIK, N.P., tekhnicheskij
redaktor

[Chemical and technical control in wood pulp production] Khimiko-
tekhnicheskij kontrol' lesokhimicheskikh proizvodstv. Moskva,
Goslesbumizdat, 1956. 257 p. (MLRA 10:4)
(Woodpulp industry)

CHASHCHIN, A.M.

Experience in the production of higher esters. Gidroliz.i lesokhim.
prom. 12 no.3:13-15 '59. (MIRA 12:6)

1. Dmitriyevskiy lesokhimicheskiy zavod.
(Wood—Chemistry) (Esters) (Butyl alcohol)

GORDON, Lev Vladimirovich; FEFILOV, Vladislav Vasil'yevich; SKVORTSOV, Semen Osipovich; ATAMANCHUKOV, Georgiy Dmitriyevich; PLATUNOV, N.A., retsenzent; CHASHCHIN, A.M., retsenzent; LIZUNOV, A.A., inzh., red.; PROTANSKAYA, I.V., red.isd-va; PARAKHINA, N.L., tekhn.red.

[Technology of the wood-chemistry industries] Tekhnologiya leso-khimicheskikh proizvodstv. Izd.2., perer. Pod red. A.A.Lizunova. Moskva, Goslesbunizdat, 1960. 418 p. (MIRA 14:1)
(Wood-Chemistry)

CHASHCHIN, A.M.; LEBEDEVA, N.M.

Continuous vapor-phase production of ethyl acetate. Gidroliz.i
lesokhim.prom. 15 no.8:6-8 '62. (MIRA 15:12)

1. Tsentral'nyy nauchno-issledovatel'skiy i proyektnyy institut
lesokhimicheskoy promyshlennosti.
(Ethyl acetate)

CHASHCHIN, A.M.

Vapor-phase heterogeneous esterification of acetic acid by ethyl alcohol. Sbor. trud. TSNILKHI no.15:12-29 '63.

Studying the kinetics of esterification in the vapor phase. Ibid.:30-42

(MIRA 17:11)

CHASHCHIN, A.M.; LEBEDEVA, N.M.; PERINYKH, M.S.; VARLAMOVA, A.I.

Removing resinous impurities from technical acetic acid.

Gidroliz. i lesokhim. prom. 16 no.2:10-12 '63.

(MIRA 16:6)

1. Tsentral'nyy nauchno-issledovatel'skiy i proyektnyy institut
lesokhimicheskoy promyshlennosti.

(Acetic acid)

DRUSKINA, E.Z.; SHAPOSHNIKOV, Yu.K.; VODZINSKIY, Yu.V.; CHASHCHIN, A.M.

Determination of lower fatty acids and their ethyl esters by
gas-liquid chromatography. Gidroliz. i lesokhim. prom. 17 no.3:
15-17 '64. (MIRA 17:9)

1. Tsentral'nyy nauchno-issledovatel'skiy lesokhimicheskiy
institut.

CHASHCHIN, Arkady Maksimovich; KISLITSYN, Aleksey Nikolayevich;
CHUDINOV, Stanislav Vasil'yevich; ZHURAVLEV, Petr Ivanovich
GORDON, L.V., red.

[How wood chemistry benefits the national economy] Leso-
khimiia - narodnomu khoziaistvu. Moskva, Lesnaia pro-
myshlennost', 1965. 58 p. (MIRA 18:9)

VERSHININ, Nikolay Ivanovich; VERTSAYZER, Anatoliy L'vovich;
YAKOVLEV, Vladimir Mikhaylovich; CHASHCHIN, A.V., red.

[Automatic control] Avtomaticheskii kontrol'. Moskva, Izd-
vo "Energia," 1964. 141 p. (Biblioteka po avtomatike,
no.90) (MIRA 17:5)

PODREZOVA, A.; ANDREYEV, V.; CHASHCHARIN, B.

Get acquainted with a collective farm of communist labor. IUn.
nat. no.9:1-6 S '62. (MIRA 16:5)

1. Kolkhoz imeni XXI s"yezda Kommunisticheskoy partii Sovetskogo
Soyusa, Odesskaya oblast', Berezovskiy rayon.
(Berezovka District (Odessa Province)--Collective farms)

CHASHCHIN, B. V.

Chashchin, B. V.

"Methods of Increasing the Productiveness of Alatau Cattle on the Productive Dairy and Meat Sovkhozes of Taldy-Kurgan Oblast." Min Higher Education USSR. Alma-Ata Zooveterinary Inst. Alma-Ata, 1955 (Dissertation for the degree of Candidate in Agricultural Sciences)

SO: Knizhnaya letopis' No. 27, 2 July 1955

SALYUKOV, P.A., kand. biol. nauk; VERNIGOR, V.A., kand. sel'khoz. nauk; KORMANOVSKAYA, M.A., kand. sel'khoz. nauk; GOLODNOV, A.V.; SKOROBOGATOV, Yu.A., mladshiy nauchnyy sotr.; MALLITSKIY, V.A., kand. sel'khoz. nauk; ~~CHASHCHIN~~, B.V., kand. sel'khoz. nauk; PONOMAREV, P.P., kand. tekhn. nauk; BARMINTSEV, Yu.N., doktor sel'khoz. nauk; MECHAYEV, I.N., mlad. nauchnyy sotr.; POZDNYAKOV, P.M., kand. biol. nauk; KOVIN'KO, D.A., kand. biol. nauk; BALANINA, O.V., kand. sel'khoz. nauk; MOISEYEV, K.V., kand. sel'khoz. nauk; ROMANOV, P.F., kand. veter. nauk; PAL'GOV, A.A., kand. veter. nauk; ANAN'YEV, P.K., kand. veter. nauk; VASIL'YEV, B.M., kand. sel'khoz. nauk; ABDULLIN, V.A., kand. ekon. nauk; GALIYAKBEROV, N., laureat Gos.premii, kand. sel'khoz. nauk, red.; GUSEVA, N., ~~med.~~; NAGIBIN, P., tekhn. red.

[Reference book for zootechnicians] Spravochnik zootekhnika. Pod red. N.Galiakberova. Alma-Ata, Kazsel'khozgiz, 1963. 492 p. (MIRA 16:5)

(Kazakhstan--Stock and stockbreeding)

CHASHCHIN, Fedor Dmitriyevich; MIKHAYLOVA, V., redaktor; MOROZOVA, G.,
tekhnicheskiy redaktor

[Sixty days in the virgin fields] 60 dni na tseline. [Moskva]
Izd-vo TsK VLKSM "Molodaya gvardiya," 1957. 109 p. (MLRA 10:8)
(Kazakhstan--Agriculture)

CHASHCHIN, I.P.

AUTHOR:

3-58-4-32/34
Norkin, N.N., Candidate of Technical Sciences; Kolin, V.,
Candidate of Chemical Sciences; Spetstsi, G.D.; Andrianov,
A.P., Chashchin, I.P.; Bogma, A.S.

TITLE:

Bibliography (Bibliografiya) A Guide for Practical Exercises
(Rukovodstvo k prakticheskim zanyatiyam)

PERIODICAL:

Vestnik Vysshey Shkoly, 1958, # 4, pp 9192 (USSR)

ABSTRACT:

This is a review of a book (published by Goskhimizdat, 1957)
"Guide for Practical Exercises in the Laboratory of Processes
Apparatuses of Chemical Technology", which was compiled by
F.G. Romankov, L.P. Dmitriyenko, B.N. Lepilin, A.A. Noskov,
I.Ye. Ovechkin, N.V. Ozerova, I.S. Pavlushenko, N.B. Rashkova-
kaya, V.M. Sokolov, N.I. Taganov and P.Ya. Yablonskiy, workers
of the Chair of Processes and Apparatuses of Chemical Techno-
logy, Leningradskiy tekhnologicheskii institut imeni Lensovet
(Leningrad Technological Institute imeni Lensovet)

ASSOCIATION:

Tomskiy politekhnicheskii institut imeni S.M. Kirova (Tomsk
Polytechnic Institute imeni S.M. Kirov)

AVAILABLE:

Library of Congress

Card 1/1

CHASHCHIN, I. P., and NORKIN, N. N.

"Heat Transfer From Tube Surfaces with Low Fins."

Report submitted for the Conference on Heat and Mass Transfer,
Minsk, BSSR, June 1961.

21,4240

22539
S/096/61/000/006/006/006
E194/E155

AUTHORS: Norkin, N.N., Candidate of Technical Sciences, and
Chashchin, I.P., Engineer

TITLE: Heat transmission of tubular surfaces with short ribs

PERIODICAL: Teploenergetika, 1961, No. 6, pp. 77-78

TEXT: This article describes tests made on tubular heat-exchangers with short ribs in the tubes (1 - 3 mm high) with longitudinal flow over the tube. The helical transverse ribs were produced by rolling and deforming the tube walls. Tubes of this kind have up to two and a half times the surface of smooth tubes and are particularly useful where the heat-transfer coefficient from the fluid to the tube is small. The heat-transfer coefficient and hydraulic resistance were determined experimentally in longitudinal bundles of ribbed tubes. Air used in the tests was heated to a working temperature of 80-100 °C. The tubes were cooled by water. The measuring technique is briefly described. Four sets of tube bundles were used, each consisting of 19 tubes in honeycomb arrangement; the first bundle consisted of smooth tubes with an internal diameter of 18 mm and external diameter of Card 1/ 4

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S/096/61/000/006/006/006

Heat transmission of tubular surfaces ...E194/E155

23 mm. The remaining bundles had tubes of the following characteristics:

Bundle No.	d_0	h_{rib}	s
2	21 mm	1 mm	2 mm
3	20 mm	1.5 mm	4 mm
4	20 mm	1.5 mm	2 mm

Here d_0 is the effective diameter of the tube, s is the pitch of the ribs, h is the height of the ribs. The experimental data obtained in the tests are given in Table 2, in which the column headings are: 1 - number of tube bundle; 2 - test number; 3 - inlet air temperature; 4 - outlet air temperature; 5 - inlet water temperature; 6 - outlet water temperature (all °C); 7 - rate of water flow x 100 cm³/sec; 8 - rate of air flow in the intertube space, m/sec; 9 - pressure drop per metre length of tube, mm water. On the basis of the experimental data the following formula was drawn up for calculating the heat-transfer coefficient of honeycomb bundles of tubes with helical ribs:

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S/096/61/000/006/006/006

Heat transmission of tubular surfaces....E194/E155

$$Nu = 0,35 \left(\frac{h}{d_e} \right)^{1,167} \left(\frac{s}{d_e} \right)^{-0,75} Re^{0,7-0,4 \frac{h}{d_e}}$$

This formula may be used for calculations for air in the range of Reynolds numbers, $Re = 4000 - 10\ 000$. The agreement with experimental data is about $\pm 10\%$. It will be seen that the heat-transfer coefficient of ribbed tubes is double that of smooth tubes. Determination of optimum tube geometry will be the subject of further work. ✓

There are 2 figures, 2 tables and 5 references (Soviet, but one evidently translated from English).

ASSOCIATION: Tomskiy politekhnicheskii institut
(Tomsk Polytechnical Institute)

Card 3/4

22539

S/096/61/006/006/006/006

Heat transmission of tubular surfaces..E194/E155

Table 2

№ образца	№ опыта	Температура, °C				Расход воды. 100 см³ за 1 сек	Скорость возду- ха в воздухово- де, м/сек	Перепад давл.- ния на 1 м дли- ны труб, мм вод. ст.
		воздуха		воды				
		на входе	на выхо- де	на входе	на выхо- де			
1	1	92,3	17,4	9,6	24,7	50	0,62	0,125
	2	99,5	23,0	10,8	40,8	53	0,83	0,2
	3	93,0	24,0	11,4	40,0	48	1,10	0,3
2	1	91,0	22,1	8,2	31,0	20	1,08	0,324
	2	92,5	17,5	7,8	22,4	22	0,82	0,20
	3	96,0	16,6	9,9	22,9	75	0,64	0,125
3	1	96	24,5	12,2	42,0	35	0,92	0,375
	2	100	19,2	10,6	35,0	35	0,65	0,125
	3	95	17,5	11,0	33,0	34	0,60	0,1125
4	1	95	26,0	12,0	45,0	27	1,10	0,5
	2	96	22,0	12,5	37,0	28	0,75	0,33
	3	90	19,5	12,3	30,8	32	0,62	0,125

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AUTHORS: Norkin, N.N. and Chashchin, I.P.

TITLE: Heat-transfer of Finned Surfaces in the Case of Longitudinal Flow Around Tubes

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TEXT: The authors investigated tubular heat-exchangers with transverse fins used in the case of longitudinal flows. The heat-transfer and the aerodynamic resistance of finned tubular surfaces in a transverse flow have been adequately studied. Earlier held views that stagnant zones exist in the case of longitudinal flow along tubes with transverse fins proved erroneous. Knudsen and Katz (Ref. 2 - Chem. Engng. Progr., 46, 490, 1950) have shown that between the fins turbulent movement occurs, which ensures higher heat-transfer coefficients than can be obtained by using longitudinal fins. In the latter case, the mixing of the gas in the radial direction is poor. The test results show that optimum indices of heat-transfer as well as of pressure drops were obtained for the smallest
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